

**NJDOT Bureau of Research  
QUARTERLY PROGRESS REPORT**

<b>Project Title:</b> <b>Alternate Performance Measures for Evaluating Congestion</b>	
<b>RFP Number:</b> 2001-20	<b>NJDOT Research Project Manager:</b> Nancy Ciaruffoli
<b>Task Order Number/Study Number:</b> NCTIP-41	<b>Principal Investigator:</b> Spasovic, Lazar
<b>Project Starting Date:</b> 01/01/2002	<b>Period Starting Date:</b> 7/01/2004
<b>Original Project Ending Date:</b> 12/31/2002	<b>Period Ending Date:</b> 9/30/2004
<b>Modified Completion Date:</b> 11/30/2003	

<b>Task</b>	<b>% of Total</b>	<b>% of Task this quarter</b>	<b>% of Task to date</b>	<b>% of Total Complete</b>
Task 1.1 Literature Search	8	0	100	8
Task 1.2 Literature Search Presentation	8	0	100	8
Task 2.1 Current Congestion Data	8	0	100	8
Task 2.2 Existing Performance Data	8	0	100	8
Task 2.3 Existing Congestion Baseline	16	0	100	16
Task 2.4 Labor and Industry Data	8	0	100	8
Task 2.5 Determine Costs of Congestion	16	0	100	16
Task 2.6 Study Program Effectiveness	12	0	100	12
Task 2.7 Quarterly Progress and Final Report	8	0	100	8
Task 3.1 Demonstration/Initial Training	4	10	100	4
Task 3.2 Follow-up Training Session	4	100	100	4
Final Report				
<b>TOTAL</b>	<b>100 %</b>			<b>100.0 %</b>

**Project Objectives:**

The goals of this study are to develop and computer time-based measures that accurately and effectively describe congestion and mobility in New Jersey. It is generally accepted that there is no single measure that will address all aspects of congestion. A group of measures will need to be identified and applied which will convey a "report card" on New Jersey's congestion. This group will need to be easy to compute, easy to comprehend, easy to compare, and easy to update.

**Project Abstract:**

In 1986, the Federal Highway Administration (FHWA) published the first national comprehensive look at congestion: "Quantification of Urban Freeway Congestion and Analysis of Remedial Measures" (FHWA-RD-87-052, October 1986). This study used the Highway Performance Monitoring System (HPMS) data to estimate and compare the level of congestion for urban areas across the country. This study offered two significant, and at the time, controversial conclusions: congestion affects all urban areas in the country, from the largest to the smallest; and

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congestion could not be addressed solely through new roadway construction. The study estimated the cost of congestion at almost \$10 billion in 1984, growing to over \$50 billion by 2005. A comprehensive plan that would increase supply through new roadway construction as well as reduce demand through transit, ride-sharing and other measures, was needed.

More recently, the Texas Transportation Institute (TTI) produced the "Urban Mobility Study," an annual update to the original FHWA work. The 2001 update found that the cost of traffic congestion nationwide now totals \$78 billion, representing the cost of 4.5 billion hours of extra travel time and 6.8 billion gallons of fuel wasted while sitting in traffic. The average delay is 36 hours per person per year, and the average rush hour trip takes 32 percent longer than the same trip taken during non-rush hours.

In February 2000, NJIT, together with the Foundation for the Alliance for Action, released a report focused on congestion in New Jersey. "Mobility and the Costs of Congestion in New Jersey" applied some of the analysis techniques used by TTI to the more detailed data that was available for New Jersey through the NJCMS. In addition, local data, rather than national averages, were used to better understand the costs of congestion in New Jersey. This study found that congestion impacts all 21 counties statewide; the total cost totaled almost \$5 billion or about \$880 per licensed driver; and that the cost of congestion would double by 2015 if needed state transportation investments in both highway and rail were not made. This study introduced the concept of analyzing transportation improvements using economic analysis techniques such as benefit-cost ratio to better justify transportation investments. The reduction should be seen as an offset to the investment in transportation projects.

In July 2001, NJIT released an updated version of the "congestion study" that used the latest version of the CMS data. The study also utilized other sources of data including NJDOT regional planning models to compute additional time-based measures including: congestion cost per affected person and congestion cost per peak period trip. The study also expanded on the use of economic analysis techniques to compare transportation investments. The results of this study indicated that the cost of congestion in New Jersey had grown from \$5 billion to over \$7 billion due to greater anticipated traffic growth in the congested northeastern region of the state.

This research will use various time-based measures to quantify congestion in New Jersey.

**1. Progress this quarter by task:**

Phase III

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NJIT completed two congestion program training sessions at NJDOT. The initial session including program overview, methodology and application took place on 5/26/2004. The follow-up session addressing NJDOT questions took place on 7/20/2004. The program is now up and running on several NJDOT computers.

**2. Proposed activities for next quarter by task:**

**3. List of deliverables provided in this quarter by task (product date):**

Congestion Analysis Model (application on CDROM)

Congestion Analysis Model User's Manual (hardcopy and .pdf file)

**4. Progress on implementation and training activities:**

None

**5. Problems/proposed solutions:**

None

**6. Budget summary:**

Total Project Budget	\$85,139.00
Modified Contract Amount	\$100,412.00
Total Project Expenditure to date	\$100,412.00
% of Total Project Budget Expended	117.94%